M E M O R A N D U M

DATE: April 25, 2011

TO: Policy Committee

FROM: Luke Vinciguerra, Scott Whyte, Sarah Propst

SUBJECT: Communications Towers Ordinance

I. Communications Towers

Communication tower standards and regulations are found in Sections 24-121 through 24-128 of the Zoning Ordinance, establishing among other items, height restrictions, design standards and submittal requirements. Additionally, there are Performance Standards for Wireless Communication Facilities adopted by the Board in May 1998 that apply to Special Use Permit applications. These standards are the essential component of a Wireless Communications Facilities (WCF) ordinance as they help minimize the visual and aesthetic impact of new towers.

The current WCF ordinance was created in 1998 when wireless communication technology was in its infancy and tower visibility was the predominant regulatory issue. In today's economy, adequate wireless communications capabilities are an essential part of commerce and expected by businesses, residents and visitors alike. Per Board directive, staff was asked to review the existing WCF ordinance to ensure it was up to date and does not exclude any newer forms of wireless technology.

A. Review of a multi-antenna or nontraditional antenna network

Staff has found the ordinance does not exclude newer forms of wireless technology; however, there are instances where clearer standards could be provided for certain unique deployment circumstances such as a multi-antenna network. Newer technologies are often deployed by replacing older antennas. To date, an antenna with a newer technology can easily be switched with an older antenna inside any of the County's numerous slickstick towers. The ordinance does have size limitations for visible antennas; however, neither the consultant nor any industry professional that staff has been in conversation with have had any concerns with these restrictions.

1. Description of Issue
   - Should a wireless carrier propose a set of networked antennas (such as DAS) designed to replace (or prevent) the deployment of one or more towers for a geographic location, applicants may feel the ordinance lacks a clear procedure or performance criteria by which the application would be reviewed.

2. History
   - Planning staff has yet to review this type of application but is aware of said networks being deployed in cities such as Hilton Head and Savannah. Systems such as DAS are often best suited for metropolitan areas and campus settings.

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction
   - The Comprehensive Plan recognizes the need to ensure that the Wireless Communications Ordinance includes provisions for new technology, protects the aesthetics of the County, and encourages coverage throughout the County. GSA CC 7 states that the County should,

"Keep pace with the changes in wireless communication technology to better enable providers to preserve existing community character while providing quality service." GSA CC 7.1. recommends a way to accomplish this is to "Update the Wireless Communications Division of the Zoning Ordinance to accommodate the use of new and emerging wireless communication services." Coverage is also considered in PN 5.1. "Facilitate extension or improvement of communications coverage in under-served areas of the county."

- *Required 400' residential setback*. Industry representatives have expressed concern that the requirement restricts locations for new towers and limits carriers' ability to provide service to their customers; specifically, a system like DAS would be difficult or impossible to deploy if a 400 foot setback were maintained for this type of system.

4. Solutions and Policy Options
   - Staff recommends a new ordinance section that clarifies the approval process for non-traditional antenna applications. For purposes of this section, nontraditional antenna system means a 'set of antenna nodes networked with each other and connected to a wireless service source such that one or more high-power antennae on a tower that serve a given area are replaced (or prevented) by a group of lower power antennas to serve the same geographic area.' From a staff prospective, any antenna (or group of antennas) is approvable as long as setback, size and height restrictions are not breached. This proposed new section would reiterate these standards, state the districts permitted, and list common new(er) networked-antenna technologies that are applicable. Staff foresees the ordinance section containing the following: a) Administrative approval - this could be used if the proposal utilizes existing structures (e.g. building mounted, alternatively mounted) or other *camouflaged support structures* to deploy the proposed antennas. If all the elements of the network are under the height limitations for the district, the plan could be approved administratively by the submission of a single site plan, RF Report and intermodulation study. b) Legislative Approval - should any of the proposed antennas be deployed above the maximum height limit of the district (or not be permitted by-right) an SUP would be required (and subsequent submission of a site plan, RF Study and intermodulation report).

     The 400' residential tower setback requirement would likely not be suitable for this deployment option. For example, should an applicant propose a fake light pole to deploy an antenna as a component of the networked system, staff would likely consider it a 'tower;' thus, it would be subject to the 400' residential setback requirement. For this deployment option only, staff proposes waiving the 400' residential setback requirement for low *camouflaged support structures* (antenna deployment on a structure that does not look like WCF tower). Note if a support structure is over the maximum height permitted in a district the proposal would require an SUP (See attachment 4).

     It is important to note the difference between a tower and an antenna. The majority of citizen concerns expressed are regarding the visibility of a proposed tower. This proposed new section would require support structures to be below the height limits of the district (usually 35') unless otherwise approved by the Board. This new section of the ordinance should facilitate in the deployment of wireless technologies that do not require large towers.

     Should the Board support this option, staff recommends an addition to the WCF Performance Standards Policy to provide staff with an updated policy to review a network of small antennas that requires a SUP.

Recommendation

Staff recommends the Committee endorse a new ordinance section describing the procedure, visibility, height, and setback requirements as shown in attachment 4 for nontraditional antenna systems.

B. Personal Communications

1. Description of Issue

-Staff has researched new technologies that may possibly require antennas on individual homes beyond typical VHF/UHF/AM/FM, and satellite dish antennas. One technology that was identified is what is sometimes termed a 'microcell.' These are essentially amplifiers (antennas) placed in (or on) homes to boost carriers signals. Staff has also found that some internet carriers (though rare) offer service for residents through line of site antennas. Similar to microwave antennas, the individual homes antenna must be pointed and in view of the service providers antenna. The purpose of this exercise was to ensure that home based antennas necessary for these services were permitted under the ordinance. The current ordinance generally permits home antennas as long as they meet the height limitations for the district; staff, the industry, nor the consultant have identified any necessary changes to home based antenna requirements. Staff notes that the large satellite dish antennas popular in '90s are now obsolete and may not need to be permitted in the zoning ordinance.

2. History

- Not applicable to this section

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction

- See Sec. 'A' above

4. Solutions and Policy Options

- No changes to policy recommended

C. Tower setbacks

1. Description of Issue

- The consultant has recommended additional setbacks for towers as stated below to protect viewsheds from communication towers.

2. History

- The current height restrictions for WCF's are the same as building height restrictions in the zoning districts (excluding camouflaged towers).

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction

-Staff received public comment from an organization and an individual representing the wireless industry. Those comments are included with this memorandum as attachment 1 & 2.

4. Solutions and Policy Options

- The Consultant has stated that the typical residential setback for municipalities similar to James City County is 300 feet (such as Hanover County). Staff does not recommend further modification to the residential setback policy (except to what was discussed in section A). Additionally, the consultant recommends *the residential setback requirement apply to occupied schools and day care centers*. Staff is supportive of this provision.

- The following are new Consultant recommended setbacks:
  - *(a) All tower structures shall be a minimum of 1000' from a designated* scenic *By-Way as determined by the Virginia Department of Transportation.*
  - *(b) All towers shall be located from a designated wetlands area a minimum of the height of the structure.*

(c) *Any property listed on the county, state or federal register as a "historic" property, the tower/WCF shall be camouflaged and shall be setback approximately 300' from any building structure.*

The three scenic By-Ways in James City County are the Colonial Parkway, Greensprings Road and Route 5. Staff supports the concept of keeping towers out of scenic view sheds; however, should the 1,000 foot restriction proposed by the consultant in (a) be adopted, the Constance Avenue tower (JCC case No. SUP-26-2009) may not have been approved due to its proximity to the Colonial Parkway. The Treasure Island tower (JCC case No. SUP-19-09) is over 2,000 feet from the Parkway and the Ingram Road tower (JCC case No. SUP-28-09) is roughly 500 feet away from Route 5. Staff finds a more feasible setback to be 400' for any tower higher than the by-right height limitations in a district from any scenic By-Way. Staff finds item (b) unnecessary because of the County's stringent RPA policies, and is supportive of provision (c).

Recommendation

- Staff recommends the Policy Committee endorse item (c) and a proposed 400' tower setback policy for towers exceeding the by-right height limitations along scenic By-Ways to protect viewsheds.

D. Planning Director Camouflaged Determination

1. Description of Issue
   - The zoning ordinance currently authorizes the Planning Director to permit towers up to 120' by-right if it is determined to be camouflaged. The camouflaged definition presents three options as follows:

     "Camouflaged structure. Any WCF disguised or hidden so that all of its components are unnoticeable to the casual observer, or otherwise not have the appearance of an antenna or tower, and which meets at least one of the following (1) the structure has the appearance, scale and height of other structures that are generally permitted in the district in which it is to be located; (2) the structure has the appearance of vegetation native to eastern Virginia; or (3) the structure is completely surrounded by a minimum of a 100-foot, undisturbed buffer of mature trees, or a buffer consisting of other elements such as evergreen trees, other structures or topography that provide at least the equivalent visual effect of a 100-foot undisturbed buffer of mature deciduous trees, that in combination with the design and color of the structure, renders the structure unnoticeable to the casual observer."

     Within the WCF ordinance, there are additional requirements that apply in instances where the buffer is being provided to camouflage the WCF, and in instances where the WCF is intended to have the appearance of vegetation native to eastern Virginia. The consultant offered recommendations that could help clarify this authority and provide additional options to reduce visibility.

2. History
   - The camouflaged provision has only been used ½ dozen times in the past ten years, and has stringent visibility and buffering criterion.

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction
   - Noted above

4. Solutions and Policy Options
   - The Consultant recommends the addition of the following provisions to the camouflaged facilities section of the ordinance:

(a) For applications using camouflaged option 2 (appearance of vegetation native to eastern Virginia), the consultant recommends that an additional provision be added that the tower shall be no more than 10' above the surrounding tree line.

(b) For applications using camouflaged option 1 (appearance of other structures generally permitted in the district), the consultant recommends that a "Design Ratio to Proportion" provision be added for the height as follows:

- *2:1 Ratio: Any camouflaged WCF should be no taller than twice or two (2) times the permitted height Above Ground Level of an existing adjacent structure up to 70 feet.*

Staff finds item (a) too restrictive and could reduce the Planning Directors ability to approve camouflaged towers. However, staff does recommend language stating that camouflaged towers utilizing option 2 have similar appearance, scale and height of surrounding vegetation. Regarding item (b) the Planning Director could administratively approve an application up to 70' for camouflaged applications where towers are hidden to look like a location appropriate structure (see attachment 3). This is an example where a communication tower is made to look like a silo next to an existing silo. The current ordinance may permit a tower disguised as a silo already; however, the inclusion of this language would require another proportional object (such as a real silo) to be in the vicinity so the proposed camouflaged tower doesn't appear out of scale. Note that this requirement doesn't require a tower to be camouflaged as a silo, a silo is only an example.

(c) For all camouflaged applications, the consultant recommends that a provision be added regarding professional design requirements:

i. All camouflaged WCF's shall include a detailed Landscaping Plan and Profile Views encompassing native tree buffer, native vegetation, Correct Ratio to Proportion of existing tree buffers or structures, and artistic view of the proposed facility in profile.

ii. Landscape Architect shall be professionally licensed in the Commonwealth of Virginia and shall have experience in historic design.

Requiring a landscape architect to produce renderings of a proposal would ensure that a trained designer produces any documentation. This would help ensure that any example renderings produced by an applicant look nearly identical to the tower after it is constructed.

Recommendation

- Staff recommends the Policy Committee endorse the aforementioned policy options as stated above.

E. Other Potential options for the WCF Ordinance

1. Description of Issue

Staff and the consultant have researched ordinances from other localities and have found provisions that appear applicable for James City County. Below are noteworthy concepts the County may want to address in the WCF Ordinance update.

2. History

- Not applicable to this section

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction

-See Sec 'A' above

4. Solutions and Policy Options

- Staff has noted in other WCF ordinances provisions for "Carrier on Wheels" or "Cell on Wheels" (COWs). These are portable self contained cell sites that can be moved to a location and set up to provide personal wireless services on a temporary basis. A COW is normally vehicle mounted and contains a telescoping boom as the Antenna support structure and its use is only temporary. Staff is considering language regulating the time in which a COW can be used during an event, detailing where they can be placed and requiring them to be bonded.

- Some zoning ordinances have a minimum number of antenna positions that must be on a tower based on its height. Staff is supportive of this concept

- Some ordinances have minimum standards for propagation coverage maps. Currently staff requests the applicant provide maps showing current and proposed coverage; however, there aren't any clear standards. Staff is supportive of adopting minimum standards for propagation maps.

- The consultant has recommended cumulative RF Reports. These are reports that take into account emissions from the proposed antennas and antennas already existing on a tower. Staff is supportive of this concept.

- A common by-right height for WCF towers is 80.' The consultant noted that the County's by-right height limitations for towers is low and often unusable to the industry. Staff is unaware of any complaints from the industry regarding the current by-right tower height limits. Staff finds the County's opportunities for co-location, building mounted, alternatively mounted antennas and predictable SUP process adequate; raising the by-right tower height limits appears to be unnecessary. Higher by-right tower limits could result in unsightly towers that neither staff nor the Board could regulate.

F. Future of WCF's

1. Description of Issue

The consultant believes that in the future neighborhoods will need their own communication tower as providers have discovered that wireless service is significantly cheaper than underground cables. Media (and possibly even electricity) could be transmitted from each neighborhoods antenna to individual small antennas on every home.

2. History

- Not applicable to this section

3. Comprehensive Plan GSAs, public input, Sustainability Audit, and PC and BOS Direction

-See Sec 'A' above

4. Solutions and Policy Options

- As this is theoretical only, staff has not recommended any ordinance changes based on this prediction.

II. Conclusion

Staff requests the Policy Committee provide input on the policy options stated above.

Attachments:

1. Planning Commission forum comments from Steven Romine
2. Comments from David Neiman on behalf of J4C
3 . Example of 2:1 ratio
4. Table of Proposed Non-traditional antenna network requirements